



SEQUENCE LISTING

<10> Melnik, Anastasios
<11> Hantz, Hsu-Ching Chen

<120> MODULATION OF SULFATE PERMEASE FOR
PHOTOSYNTHETIC HYDROGEN PRODUCTION

<130> BERK-016CIP

<140> 10/762,769

<141> 2004-01-21

<150> 60/354,760

<151> 2002-02-04

<150> 60/377,902

<151> 2002-05-02

<150> 10/350,298

<151> 2003-01-22

<160> 9

<170> FastSEQ for Windows Version 4.0

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<211> 1853

<212> DNA

<213> Chlamydomonas reinhardtii

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<210> 7

<211> 369

<212> PRT

<213> Chlamydomonas reinhardtii

<400> 7

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Thr His Thr Ser Ala Pro Ser Thr Ser Lys Tyr Cys Asp Ser Ser Ser
35          40          45
Val Ile Glu Ser Thr Leu Gly Arg Gln Thr Ser Val Ala Gly Arg Pro
50          55          60
Trp Leu Ala Pro Arg Pro Ala Pro Gln Gln Ser Arg Gly Asp Leu Leu
65          70          75          80
Val Ser Lys Ser Gly Ala Ala Gly Gly Met Gly Ala His Gly Gly Gly
85          90          95
Leu Gly Glu Pro Val Asp Asn Trp Ile Lys Lys Leu Leu Val Gly Val
100         105         110
Ala Ala Ala Tyr Ile Gly Leu Val Val Leu Val Pro Phe Leu Asn Val
115         120         125
Phe Val Gln Ala Phe Ala Lys Gly Ile Ile Pro Phe Leu Glu His Cys
130         135         140
Ala Asp Pro Asp Phe Leu His Ala Leu Lys Met Thr Leu Met Leu Ala
145         150         155         160
Phe Val Thr Val Pro Leu Asn Thr Val Phe Gly Thr Val Ala Ala Ile
165         170         175
Asn Leu Thr Arg Asn Glu Phe Pro Gly Lys Val Phe Leu Met Ser Leu
180         185         190
Leu Asp Leu Pro Phe Ser Ile Ser Pro Val Val Thr Gly Leu Met Leu

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195	200	205
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210	215	220
Thr Gly Ile Asn Val Val	Phe Ala Phe Thr Gly	Met Ala Leu Ala Thr
225	230	235
Met Phe Val Thr Leu Pro	Phe Val Val Arg Glu	Leu Ile Pro Ile Leu
245	250	255
Glu Asn Met Asp Leu Ser	Gln Glu Glu Ala Ala	Arg Thr Leu Gly Ala
260	265	270
Asn Asp Trp Gln Val Phe	Trp Asn Val Thr Leu	Pro Asn Ile Arg Trp
275	280	285
Gly Leu Leu Tyr Gly Val	Ile Leu Cys Asn Ala	Arg Ala Met Gly Glu
290	295	300
Phe Gly Ala Val Ser Val	Ile Ser Gly Asn Ile	Ile Gly Arg Thr Gln
305	310	315
Thr Leu Thr Leu Phe Val	Glu Ser Ala Tyr Lys	Glu Tyr Asn Thr Glu
325	330	335
Ala Ala Phe Ala Ala Ala	Val Leu Leu Ser Ala	Leu Ala Leu Gly Thr
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Leu Trp Ile Lys Asp Lys	Val Glu Glu Ala Ala	Ala Ala Glu Ser Arg
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Lys		

<210> 8
 <211> 465
 <212> PRT
 <213> Chlamydomonas reinhardtii

<220>
 <221> VARIANT
 <222> 438
 <223> Xaa = Any Amino Acid

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Thr Thr Thr Ser Val Ala Cys Arg Ala Ala Ser Ile Asp Lys Pro Val	
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Val Tyr Thr Pro Arg Asp Ser Ser Gln Gln Ser Ser Asn Gly Ala Gly	
65 70 75 80	
Glu Val Ser Met Ser Ile Ser Ser Met Asp Glu Val Gly Pro Ser Tyr	
85 90 95	
Glu Gly Ile Ile Thr Asp Ala Pro Thr Arg Pro Thr Gly Leu Tyr Val	
100 105 110	
Arg Val Arg Asn Met Val Lys His Phe Ser Thr Ala Lys Gly Leu Phe	
115 120 125	
Arg Ala Val Asp Gly Val Asp Val Asp Ile Glu Pro Ser Ser Ile Val	
130 135 140	
Ala Leu Leu Gly Pro Ser Gly Ser Gly Lys Thr Thr Leu Leu Arg Leu	
145 150 155 160	
Ile Ala Gly Leu Glu Gln Pro Thr Gly Gly Asn Ile Tyr Phe Asp Asp	
165 170 175	
Thr Asp Ala Thr Asn Leu Ser Val Gln Asp Arg Gln Ile Gly Phe Val	

Pro	Pro	Gly	Gly	Asn	Gly	Asp	Gly	Asp	Gly	Gly	Glu	Ala	Ala	Gly	Pro
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Gln	Pro	Leu	Ala	Asp	Val	Ala	Ala	Gln	Pro	Pro	Glu	Val	Val	Leu	Thr
		130				135					140				
Leu	Ala	Ser	Phe	Ala	Val	Thr	Lys	Leu	Ala	Tyr	Val	Arg	Val	Thr	Arg
145					150					155					160
Ala	Phe	Arg	Glu	Trp	Tyr	Glu	Arg	Thr	Lys	Gly	Val	Asp	Val	Arg	Phe
			165						170					175	
Arg	Leu	Thr	Phe	Ala	Ala	Ser	Gly	Val	Gln	Ala	Arg	Ala	Val	Ile	Asp
			180					185					190		
Gly	Leu	Pro	Ala	Asp	Ile	Val	Ala	Leu	Ala	Leu	Pro	Leu	Asp	Leu	Asp
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Lys	Ile	Val	Ser	Ala	Gly	Leu	Ile	Arg	Pro	Asp	Trp	Arg	Ser	Ala	Tyr
	210					215					220				
Pro	Ala	Ala	Ser	Val	Val	Cys	Glu	Thr	Thr	Val	Ala	Phe	Val	Val	Arg
225					230					235					240
Gln	Gly	Asn	Pro	Lys	Asn	Ile	Arg	Thr	Trp	Glu	Asp	Leu	Thr	Arg	Ala
				245					250					255	
Gly	Val	Glu	Val	Val	Leu	Ala	Asn	Pro	Lys	Thr	Ala	Gly	Val	Ala	Arg
			260					265					270		
Trp	Ile	Phe	Leu	Ala	Leu	Trp	Gly	Ala	Lys	Met	Lys	Lys	Gly	Asn	Ala
		275					280					285			
Ala	Ala	Leu	Ala	Tyr	Val	Gln	Arg	Val	Phe	Glu	Asn	Val	Val	Val	Gln
	290					295					300				
Pro	Arg	Asp	Ala	Arg	Glu	Ala	Ser	Asp	Val	Phe	Tyr	Lys	Gln	Lys	Val
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Gly	Asp	Val	Leu	Leu	Thr	Tyr	Glu	Asn	Glu	Val	Ile	Leu	Thr	Asn	Glu
			325						330					335	
Val	Tyr	Gly	Asp	Lys	Ala	Leu	Pro	Tyr	Leu	Val	Pro	Ser	Tyr	Asn	Ile
			340					345					350		
Arg	Ile	Glu	Cys	Pro	Leu	Ala	Leu	Val	Asp	Lys	Val	Val	Asp	Ala	Arg
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	370					375					380				
Thr	Pro	Ala	Ala	Gln	His	Glu	Phe	Ala	Arg	Leu	Gly	Phe	Arg	Val	Asn
385					390					395					400
Pro	Arg	Thr	Cys	Lys	Glu	Val	Ala	Ala	Gln	Gln	Thr	Gly	Leu	Pro	Pro
				405					410					415	
Ala	Asn	Leu	Trp	Gln	Val	Asp	Lys	Glu	Leu	Gly	Gly	Trp	Ala	Ala	Ala
		420						425					430		
Gln	Lys	Lys	Phe	Phe	Asp	Ala	Gly	Ala	Ile	Leu	Asp	Asp	Ile	Gln	Ser
	435						440					445			
Ala	Val	Gly	Lys	Leu	Arg	Val	Glu	Gln	Arg	Lys	Ala	Ala	Gln	Ala	Ala
	450					455					460				
Ala	Arg	Arg													
465															